Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1-82. (Cancelled)

83. (Currently Amended) A method for an electronically controlled enzymatic reaction at an addressable location, comprising the steps of:

providing an array of microlocations comprising a permeation layer coupled to a plurality of electrodes, wherein each microlocation comprises a distinct electrode within the plurality of electrodes;

contacting a biomolecule in solution with the permeation layer at a microlocation;

concentrating the biomolecule at the microlocation by placing the electrode of the microlocation at an opposite charge to the biomolecule;

attaching the biomolecule to the permeation layer at the microlocation; and

reacting an enzyme with the biomolecule at the microlocation, wherein the enzyme is selected from the group consisting of a restriction enzyme, a ligase, a proteinase, a glycosidase, a DNA polymerase, a RNA polymerase, and a phosphorylase.

84. (Previously Presented) The method of claim 83, wherein said biomolecule comprises nucleic acid.

85. (Cancelled)

86. (Previously Presented) The method of claim 83, wherein said enzyme comprises a DNA polymerase.

87. (Previously Presented) The method of claim 83, wherein said enzyme comprises an RNA polymerase.

88. (Previously Presented) The method of claim 83, wherein said enzymatic reaction comprises an enzymatic digestion of a nucleic acid.

89. (Previously Presented) The method of claim 83, wherein said enzymatic reaction comprises synthesis of a nucleic acid.

90. (Previously Presented) The method of claim 83, wherein said enzymatic reaction comprises synthesis of a polypeptide.

91. (Previously Presented) A method for electronically controlled amplification of nucleic acid, comprising the steps of:

(1) providing a location comprising a permeation layer coupled to an electrode;

(2) providing an oligonucleotide primer Y attached to said permeation layer;

(3) contacting a single stranded nucleic acid X with said primer Y, wherein said primer Y specifically hybridizes to said nucleic acid X;

(4) placing the electrode of the location at an opposite charge to said nucleic acid X, thereby concentrating said nucleic acid X on said location and hybridizing said nucleic acid X to said primer Y;

(5) contacting a nucleic acid polymerase with said nucleic acid X and said primer Y;

(6) placing the electrode of the location at an opposite charge to said polymerase, thereby concentrating said polymerase on said location and allowing said polymerase to synthesize a nucleic acid Y from said primer Y on said location;

(7) placing the electrode of the location at a negative potential for a sufficient time to remove said nucleic acid X from said location;

(8) contacting an oligonucleotide primer X with said nucleic acid Y, wherein said primer X specifically hybridizes to said nucleic acid Y;

(9) placing the electrode of the location at an opposite charge to said primer X, thereby concentrating said primer X on said location and hybridizing said primer X to said nucleic acid Y; and

(10) placing the electrode of the location at an opposite charge to said polymerase, thereby concentrating said polymerase on said location and allowing said polymerase to synthesize a nucleic acid from said primer X on said location.

92-94. (Cancelled)

95. (Previously Presented) The method of claim 83, further including the step of placing the electrode of the microlocation at an opposite charge to said enzyme, thereby concentrating said enzyme on said location.

96-98. (Canceled)

99. (Previously Presented) The method of claim 84, wherein the addressable location includes a first sequence that is complementary to a first portion of the biomolecule, further comprising the steps of:

contacting a second sequence, the second sequence being complementary to a second portion of the biomolecule, with the biomolecule at said location, the second sequence being capable of being ligated with the first sequence,

enzymatically ligating the first sequence with the second sequence, and

placing the electrode of the microlocation at similar charge to said biomolecule to remove said biomolecule from the ligated first sequence and second sequence.

100. (Previously Presented) The method of claim 99, wherein the steps are repeated for amplification.

101. (Previously Presented) The method of claim 100 wherein the amplification is of the biomolecule.

102-103. (Cancelled)

104. (Previously Presented) The method of claim 99, further including the step of placing the electrode of the microlocation at an opposite charge to said enzyme, thereby concentrating said enzyme on said location.

105. (Previously Presented) The method of claim 104, wherein the steps are repeated for amplification of the biomolecule.

106. (Cancelled)

107. (Previously Presented) The method of claim 99, wherein the second sequence is labeled.